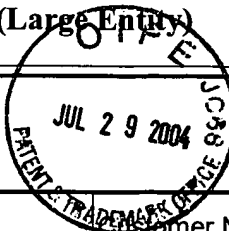


TRANSMITTAL OF APPEAL BRIEF (Large Entry)Docket No.
1527A2

In Re Application Of: Timothy A. Okel and James P. Hahn



Application No.	Filing Date	Examiner	Customer No.	Group Art Unit	Confirmation No.
09/636,308	August 11, 2000	Elena Tsoy	24959	1762	7905

Invention:

PROCESS FOR PRODUCING CHEMICALLY TREATED FILLERSCOMMISSIONER FOR PATENTS:

Transmitted herewith in triplicate is the Appeal Brief in this application, with respect to the Notice of Appeal filed on

The fee for filing this Appeal Brief is: \$330.00

- ☐ A check in the amount of the fee is enclosed.
- ☐ The Director has already been authorized to charge fees in this application to a Deposit Account.
- ☒ The Director is hereby authorized to charge any fees which may be required, or credit any overpayment to Deposit Account No. 16-2025

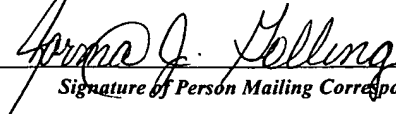

Signature

Carol A. Marmo, Esquire
Attorney for Appellants
Registration No. 39,761

PPG Industries, Inc.
Law Department - Intellectual Property
One PPG Place - 39th Floor
Pittsburgh, Pennsylvania 15272

Dated: July 27, 2004

I certify that this document and fee is being deposited
on July 27, 2004 with the U.S. Postal Service as
first class mail under 37 C.F.R. 1.8 and is addressed to the
Commissioner for Patents, P.O. Box 1450, Alexandria, VA
22313-1450.


Signature of Person Mailing Correspondence

Norma J. Golling

Typed or Printed Name of Person Mailing Correspondence

cc:



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re Application of: : PATENT APPLICATION
Okel et al. :
Serial No. 09/636,308 : Group Art Unit: 1762
Filed: August 11, 2000 : Examiner: Elena Tsoy
For: PROCESS FOR PRODUCING : Docket No.: 1527A2
CHEMICALLY TREATED :
FILLERS :

APPEAL BRIEF

Mail Stop Appeal Brief - Patents
The Honorable Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Sir:

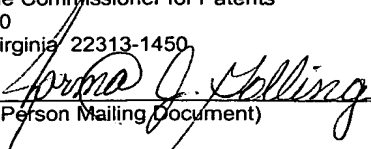
This application is before the Board of Patent Appeals and Interferences from the final rejection dated April 15, 2004 from the Examiner in charge of the above captioned patent application. A Notice of Appeal to the Board of Patent Appeals and Interferences under 37 C.F.R. 1.191 was filed with a Certificate of Mailing dated May 2, 2004.

I. Real Party in Interest

The real parties in interest are PPG Industries Ohio, Inc. and Dow Corning Corporation by virtue of Assignments dated November 7, 2000 and November 8, 2000.

07/30/2004 MHEKONEN 00000013 162025 09636308

02 FC:1401 330.00 DA

I hereby certify that this document and fee is being deposited on July 27, 2004 with the United States Postal Service as First Class Mail under 37 C.F.R. 1.8 and is addressed to:
Mail Stop Appeal Brief - Patents
The Honorable Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

(Signature of Person Mailing Document)
Norma J. Golling
(Typed or printed name of person signing certificate)

II. Related Appeal and Interferences

There are no related appeals or interferences known to Appellants, Appellants' legal representative or Appellants' assignees which will directly affect or be directly affected by or have a bearing on the Board's decision of this pending appeal.

III. Status of Claims

Claims Pending: 1-18.

Claims Cancelled: None.

Claims Allowed: None.

Claims Withdrawn from Consideration: None.

Claims Appealed: 1-18.

A copy of the claims is included in the Appendix to this Brief.

IV. Status of Amendment

All amendments have been entered; no amendment was filed subsequent to the outstanding Final Rejection of April 15, 2004.

V. Summary of the Invention

Appellants' invention is directed to a process of producing a chemically treated filler by contacting an acidic aqueous suspension of an amorphous or particulate inorganic oxide selected from precipitated silica, colloidal silica or mixtures thereof with a coupling agent to form an acidic aqueous suspension of chemically treated filler, optionally in the presence of a surfactant and/or a water miscible solvent, and recovering said filler, the improvement comprises using as said coupling agent a combination of (a) mercaptoorganometallic compound and (b) non-sulfur organometallic compound(s) in a weight ratio of (a) to (b) of at least 0.05:1 in an aqueous suspension of inorganic oxide having a pH of 2.5 or less, and treating the acidic aqueous suspension of the chemically treated filler with acid neutralizing agent(s) to increase the pH of said suspension to a range of from 3.0 to 10.

VI. The Issues

The issues presented for review by this appeal are:

1. Whether claims 1-3, 5-8, 10, 12, 14-16 and 18 have been properly rejected under 35 U.S.C. 103(a) as being unpatentable over Burns et al. (U.S. Patent 5,708,069).
2. Whether claims 1-3, 5-16 and 18 have been properly rejected under 35 U.S.C. 103(a) as being unpatentable over Burns et al. (U.S. Patent 6,051,672) in view of Burns et al. (U.S. Patent 5,708,069).
3. Whether claims 4 and 17 have been properly rejected under 35 U.S.C. 103(a) as being unpatentable over Burns et al. (U.S. Patents 5,708,609/6,051,672) in view of Burns et al. (U.S. Patent 5,708,069) and further in view of Cruse et al. (WO 99/09036).

VII. Grouping of Claims

The claims on appeal stand or fall together.

VIII. Argument

A. Rejection of Claims 1-3, 5-8, 10, 12, 14-16 and 18

Under 35 U.S.C. 103(a)

The Examiner has rejected claims 1-3, 5-8, 10, 12, 14-16, and 18 under 35 U.S.C. 103(a) as being unpatentable over United States Patent 5,708,069 ("Patent '069"). Appellants submit that Patent '069 teaches that an aqueous suspension of hydrophilic non-aggregated colloidal silica can be reacted with one or more of the organosilicon compounds described by formulas 1 and 2 (see column 5, lines 34-37). A list of suitable organosilicon compounds for use in the invention is disclosed (see column 6, lines 24-41). One having ordinary skill in the art could select from the list any one organosilicon compound or any combination of more than one organosilicon compound. The reference provides no guidance or direction for selecting any particular organosilicon compound and combining it with any other organosilicon compound. For example, a skilled artisan could select a silane

in combination with another silane, or a silane in combination with a siloxane, or a siloxane in combination with another siloxane. Patent '069 does not teach nor suggest a specific combination comprising a mercaptoorganometallic compound and a non-sulfur organometallic compound as claimed in the present invention.

It is now well established by the Federal Circuit that cited prior art must provide one of ordinary skill in the art with the motivation to use the disclosure of a reference in a manner that renders the claims obvious; namely, there must be some teaching suggestion or incentive in the prior art disclosure that supports the rejection. This requirement stands as the critical safeguard against hindsight analysis and rote application of the legal test for obviousness. See, in particular, *In re Rouffet*, 47 USPQ 2d 1453, 1458 (Fed. Cir. 1998). Further, see, *In re Dow Chemical Co.*, 837 F.2d 469, 473, 5 USPQ2d 1529, 1531 (Fed. Cir. 1988), wherein the Court found that "The consistent criterion for determination of obviousness is whether the prior art would have suggested to one of ordinary skill in the art that this process should be carried out and would have a reasonable likelihood of success, viewed in the light of the prior art ... Both the suggestion and the expectation of success must be founded in the prior art, not in the Appellants' disclosure."

Further, in regards to Patent '069, the Examiner indicated that it would have been obvious in view of this reference to use a base upon completion of the hydrophobing reaction to obtain a desirable neutral pH. Appellants submit that Patent '069 does not disclose increasing the pH following the hydrophobing reaction. Moreover, the Examples presented in Patent '069 record only the pH value at which the silica hydrogel was prepared; the Examples do not record the pH value during or following the hydrophobing reaction of said hydrogel. Patent '069 does not recognize any reason or purpose for adjusting the pH. As such, there would be no motivation for one of ordinary skill in the art at the time of the invention to modify the disclosure in this reference. See, *In re Laskowski*, 871 F.2d 115, 117, 10 USPQ2d 1397, 1398 (Fed. Cir. 1989), wherein the Court found that "Although the Commissioner suggests that [the structure in the primary prior art reference] could readily be modified to form the [claimed] structure, '[t]he mere fact that the prior art could be so modified would not have made the

modification obvious unless the prior art suggested the desirability of the modification.”

In view of Patent ‘069, absent an impermissible hindsight reconstruction using Appellants’ invention as a roadmap, there would be no motivation for a skilled artisan to select a mercaptoorganometallic compound and a non-sulfur organometallic compound to the exclusion of any other single compound or combinations of disclosed compounds; and there would be no motivation for a skilled artisan to increase the pH of the reaction mixture following the hydrophobing reaction.

B. Rejection of Claims 1-3, 5-16 and 18 under
35 U.S.C. 103(a)

The Examiner has rejected claims 1-3, 5-16 and 18 under 35 U.S.C. 103(a) as being unpatentable over United States Patent 6,051,672 (“Patent ‘672”) in view of United States Patent 5,708,069 (“Patent ‘069”). Appellants submit that Patent ‘672 teaches that an aqueous suspension of hydrophilic non-aggregated colloidal silica can be reacted with one or more of the organosilicon compounds described by formulas 1 and 2 (see column 3, lines 56-60). A list of suitable organosilicon compounds for use in the invention is disclosed (see column 4, lines 28-40). One having ordinary skill in the art could select from the list any one organosilicon compound or any combination of more than one organosilicon compound. The reference provides no guidance or direction for selecting any particular organosilicon compound and combining it with any other organosilicon compound. For example, a skilled artisan could select a silane in combination with another silane, or a silane in combination with a siloxane, or a siloxane in combination with another siloxane. Patent ‘672 does not teach nor suggest a specific combination comprising a mercaptoorganometallic compound and a non-sulfur organometallic compound as claimed in the present invention.

In regards to Patent ‘069, as presented above, Appellants submit that Patent ‘069 teaches that an aqueous suspension of hydrophilic non-aggregated colloidal silica can be reacted with one or more of the organosilicon compounds described by formulas 1 and 2 (see column 5, lines 34-37). A list of suitable organosilicon compounds for use in the invention is

disclosed (see column 6, lines 24-41). One having ordinary skill in the art could select from the list any one organosilicon compound or any combination of more than one organosilicon compound. The reference provides no guidance or direction for selecting any particular organosilicon compound and combining it with any other organosilicon compound. For example, a skilled artisan could select a silane in combination with another silane, or a silane in combination with a siloxane, or a siloxane in combination with another siloxane. Patent '069 does not teach nor suggest a specific combination comprising a mercaptoorganometallic compound and a non-sulfur organometallic compound as claimed in the present invention.

As previously stated, it is now well established by the Federal Circuit that cited prior art must provide one of ordinary skill in the art with the motivation to use the disclosure of a reference in a manner that renders the claims obvious; namely, there must be some teaching suggestion or incentive in the prior art disclosure that supports the rejection. This requirement stands as the critical safeguard against hindsight analysis and rote application of the legal test for obviousness. See, in particular, *In re Rouffet*, 47 USPQ 2d 1453, 1458 (Fed. Cir. 1998). Further, see, *In re Dow Chemical Co.*, 837 F.2d 469, 473, 5 USPQ2d 1529, 1531 (Fed. Cir. 1988), wherein the Court found that "The consistent criterion for determination of obviousness is whether the prior art would have suggested to one of ordinary skill in the art that this process should be carried out and would have a reasonable likelihood of success, viewed in the light of the prior art ... Both the suggestion and the expectation of success must be founded in the prior art, not in the Appellants' disclosure."

See also, *In re Stencel*, 828 F.2d 751, 755, 4 USPQ2d 1071, 1073 (Fed. Cir. 1987) wherein the Court found that obviousness cannot be established "by combining the teachings of the prior art to produce the claimed invention absent some teaching or suggestion that the combination be made." Moreover, in *Ex parte Clapp*, 227 USPQ 972, 973 (Bd. Pat. App. & Int'f 1985); the Court found that "To support the conclusion that the claimed combination is directed to obvious subject matter, either the references must expressly or impliedly suggest the claimed combination or the examiner must present a convincing line of reasoning as to why the artisan would have found

the claimed invention to have been obvious in light of the teachings of the references ... [S]implicity and hindsight are not proper criteria for resolving the issue of obviousness.” In *Ex parte* Haymond, 41 USPQ 2d 1217 (Bd. of Appeals 1996) the Court found that it is impermissible to use the claimed invention as an instruction manual or “template” in order to render the claimed invention obvious.

In view of Patents '672 and '069 taken either alone or in combination, there would be no motivation, absent an impermissible hindsight reconstruction using Appellants' invention as a roadmap, for a skilled artisan to select a mercaptoorganometallic compound and a non-sulfur organometallic compound to the exclusion of any other single compound or combinations of disclosed compounds.

C. Rejection of Claims 4 and 17 under

35 U.S.C. 103(a)

The Examiner has rejected claims 4 and 17 under 35 U.S.C. 103(a) as being unpatentable over Patents '069/'672 in view of '069 and further in view of WO 99/09036. Appellants submit that these claims are dependent upon a valid base claim for the reasons set forth above, and therefore are also valid.

IX. Conclusion

Allowance of the appealed claims is believed to be warranted on the controlling facts and applicable law. For the reasons stated, the examiner

erred in rejecting the claims. The examiner's final rejection should, therefore, be reversed and the claims on appeal allowed.

Respectfully submitted,

A handwritten signature in cursive script, reading "Carol A. Marmo", written over a horizontal line.

CAROL A. MARMO, ESQUIRE

Registration No. 39,761

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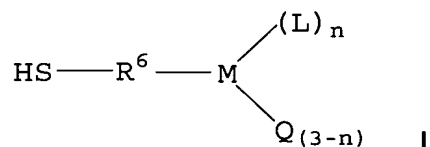
Pittsburgh, Pennsylvania
July 27, 2004



APPENDIX

1. In the process of producing a chemically treated filler by contacting an acidic aqueous suspension of an amorphous or particulate inorganic oxide selected from precipitated silica, colloidal silica or mixtures thereof with a coupling agent to form an acidic aqueous suspension of chemically treated filler, optionally in the presence of a surfactant and/or a water miscible solvent, and recovering said filler, the improvement comprises using as said coupling agent a combination of (a) mercaptoorganometallic compound and (b) non-sulfur organometallic compound(s) in a weight ratio of (a) to (b) of at least 0.05:1 in an aqueous suspension of inorganic oxide having a pH of 2.5 or less, and treating the acidic aqueous suspension of the chemically treated filler with acid neutralizing agent(s) to increase the pH of said suspension to a range of from 3.0 to 10.

2. The process of claim 1 wherein the mercaptoorganometallic material is represented by the following graphic formula I:



wherein M is silicon, L is halogen or $-\text{OR}^7$, Q is hydrogen, $\text{C}_1\text{-C}_{12}$ alkyl, or halosubstituted $\text{C}_1\text{-C}_{12}$ alkyl, R^6 is $\text{C}_1\text{-C}_{12}$ alkylene, R^7 is $\text{C}_1\text{-C}_{12}$ alkyl or alkoxyalkyl containing from 2 to 12 carbon atoms, said halogen or (halo) groups being chloro, bromo, iodo or fluoro, and n is 1, 2 or 3.

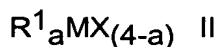
3. The process of claim 2 wherein L is $-\text{OR}^7$, R^6 is $\text{C}_1\text{-C}_3$ alkylene, R^7 is $\text{C}_1\text{-C}_4$ alkyl and n is 3.

4. The process of claim 2 wherein the mercapto group of the mercaptoorganometallic material is blocked.

5. The process of claim 1 wherein the mercaptoorganometallic material is selected from mercaptomethyltrimethoxysilane, mercaptoethyltrimethoxysilane, mercaptopropyltrimethoxysilane, mercaptomethyltriethoxysilane, mercaptoethyltripropoxysilane,

mercaptopropyltriethoxysilane, (mercaptomethyl)dimethylethoxysilane, (mercaptomethyl)methyldiethoxysilane, 3-mercaptopropyl-methyldimethoxysilane and mixtures thereof.

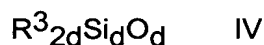
6. The process of claim 1 wherein the non-sulfur organometallic compound(s) is selected from the group consisting of organometallic compound(s) represented by formula II:



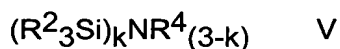
organometallic compound(s) represented by formula III:



organometallic compound(s) represented by the formula IV:



organometallic compound(s) represented by formula V:



and a mixture of said organometallic compounds; wherein each M is independently silicon, titanium or zirconium; each R^1 is independently a hydrocarbon group of from 1 to 18 carbon atoms or R^1 is an organofunctional hydrocarbon group of from 1 to 12 carbon atoms wherein, said functionality is amino, carboxylic acid, carbinol ester, or amido; each X is independently selected from the group consisting of halogen, amino, alkoxy groups of from 1 to 12 carbon atoms and acyloxy groups of from 1 to 12 carbon atoms, a is the integer 1, 2 or 3; each R^2 is independently halo, hydroxy, or a hydrocarbon group containing from 1 to 18 carbon atoms with the proviso that at least 50 mole percent of the R^2 substituents are hydrocarbon groups containing from 1 to 18 carbon atoms, c is an integer from 2 to 10,000; each R^3 is independently halo, hydroxy, or a hydrocarbon group containing from 1 to 18 carbon atoms and d is an integer from 3 to 20; each R^4 is independently hydrogen or a hydrocarbon group

containing from 1 to 18 carbon atoms and k is 1 or 2; and said halo or halogen is selected from chloro, fluoro, bromo or iodo.

7. The process of claim 1 wherein the non-sulfur organometallic compound(s) is selected from the group consisting of diethyldichlorosilane, allylmethyldichlorosilane, methylphenyldichlorosilane, phenylethyldiethoxysilane, 3,3,3-trifluoropropylmethyldichlorosilane, trimethylbutoxysilane, sym-diphenyltetramethyldisiloxane, trivinyltrimethylcyclotrisiloxane, octamethylcyclotetrasiloxane, hexaethyldisiloxane, pentylmethyldichlorosilane, divinylpropoxysilane, vinyl dimethylchlorosilane, vinylmethyldichlorosilane, vinyl dimethylmethoxysilane, trimethylchlorosilane, trimethylmethoxysilane, trimethylethoxysilane, methyltrichlorosilane, methyltrimethoxysilane, methyltriethoxysilane, hexamethyldisiloxane, hexenylmethyldichlorosilane, hexenyldimethylchlorosilane, dimethylchlorosilane, dimethyldichlorosilane, dimethyldimethoxysilane, dimethyldiethoxysilane, hexamethyldisilazane, trivinyltrimethylcyclotrisilazine, polydimethylcyclosiloxanes comprising 3 to about 20 dimethylsiloxy units, tetra(C₁-C₁₈)alkoxy titanates, methyl triethoxy titanium (iv), methyl titanium (iv) triisopropoxide, methyl titanium (iv) tributoxide, methyl titanium (iv) tri-t-butoxide, isopropyl titanium (iv) tributoxide, butyl titanium (iv) triethoxide, butyl titanium (iv) tributoxide, phenyl titanium (iv) triisopropoxide, phenyl titanium (iv) tributoxide, phenyl titanium (iv) triisobutoxide, [Ti(CH₂Ph)₃(NC₅H₁₀)] [Ti(CH₂SiMe₃)₂(NEt₂)₂], tetra(C₁-C₁₈)alkoxy zirconates, phenyl zirconium (iv) trichloride, methyl zirconium (iv) trichloride, ethyl zirconium (iv) trichloride, propyl zirconium (iv) trichloride, methyl zirconium (iv) tribromide, ethyl zirconium (iv) tribromide, propyl zirconium (iv) tribromide, chlorotripentyl zirconium (iv) and mixtures of such organometallic compounds.

8. The process of claim 6 wherein the non-sulfur organometallic compound(s) is represented by formulae II, III, IV, V or a mixture of said organometallic compound(s) wherein each M is silicon.

9. The process of claim 6 wherein the non-sulfur organometallic compound(s) is represented by formula II wherein R¹ is C₁-C₆ alkyl, X is chloro, a is 2 and the inorganic oxide is precipitated silica.

10. The process of claim 1 wherein the weight ratio of (a) to (b) is from 0.05:1 to 10:1.

11. The process of claim 9 wherein the weight ratio of (a) to (b) is from 0.2:1 to 2:1.

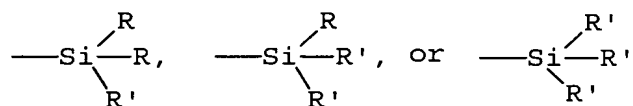
12. The process of claim 1 wherein (a) mercaptoorganometallic compound is replaced by a combination of mercaptoorganometallic compound and bis(alkoxysilylalkyl)polysulfide in a weight ratio of mercaptoorganometallic compound to bis(alkoxysilylalkyl)polysulfide of from at least greater than 1:1.

13. The process of claim 12 wherein the weight ratio of mercaptoorganometallic material to bis(alkoxysilylalkyl)polysulfide is from 5:1 to 50:1 and the inorganic oxide is precipitated silica.

14. The process of claim 12 wherein the bis(alkoxysilylalkyl)polysulfide is represented by the following graphic formula VII:



in which alk is a divalent hydrocarbon radical having from 1 to 18 carbon atoms; n' is a whole number of 2 to 12 and Z is:



wherein R is an C₁-C₄ alkyl or phenyl group, and R' is an C₁-C₈ alkoxy, a C₅-C₈ cycloalkoxy, or a C₁-C₈ alkylmercapto group.

15. The process of claim 12 wherein bis(alkoxysilylalkyl)polysulfide is selected from the group consisting of 3,3'-bis(trimethoxysilylpropyl)disulfide, 3,3'-bis(triethoxysilylpropyl)tetrasulfide, 3,3'-bis(trimethoxysilylpropyl)tetrasulfide, 2,2'-bis(triethoxysilylethyl)tetrasulfide, 3,3'-bis(trimethoxysilylpropyl)trisulfide,

3,3'-bis(triethoxysilylpropyl)trisulfide,
3,3'-bis(tributoxysilylpropyl)disulfide,
3,3'-bis(trimethoxysilylpropyl)hexasulfide,
3,3'-bis(trioctoxysilylpropyl)tetrasulfide and mixtures thereof.

16. A product of the process of claim 1.

17. A product of the process of claim 4.

18. A product of the process of claim 12.